San Antonio Radio Club

BULL-ETIN

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Meets first and third Fridays at 7:30 P.M. at the Red Cross Building, 90 Brees St. A L L who have an interest in amateur radio are cordially invited to attend.

Bull-etin Editor, Dean Davis W5BGE Asst. Ed., Maybelle Davis

Circulation Manager, Bob Via WB5FDT

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Letters to the editor should be addressed to 1518 Santa Anna, San Antonio, Tx. 78201

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ROY W5EYB RECOVERING

Roy Albright W5EYB, ARRL West Gulf Director, on Friday 20 Aug suffered a heart problem. He was taken to Brooke General Hospital and put in Coronary Intensive Care for 2 days.

Roy improved to such an extent that he was allowed to go home the follow - ing Monday evening, after persuading the doctors that Hazel's care was bet- ter than Intensive Care!

He will have to stay in bed for 14 days after which with TLC (HLC) would be allowed to do whatever he "feels" like doing.

Roy has had no previous record of any type of heart problem or high blood pressure, and has had regular physical check-ups.

(SEE IMPORTANT ANNOUNCEMENT PAGE 8.)

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WRIGHT WORD

By K5CDT Jim Wright

As promised in the last issue, here are the Field Day contacts made by the San Antonio Radio Club:

BAND/MODE	QSOs	BAND/MODE	QSOs
80 CW	133	15 Phone	722
80 Phone	133	10 Phone	165
40 CW	Not reported	6 Phone	300
40 Phone	259	2 Phone (FM)	72
20 CW	288	2 Phone (SSB)	Not reported
20 Phone	342	Novice (CW)	130
15 CW	73		

Total claimed score: 6,482 points plus bonus points for 100% Emergency Power. Pub- licity and using battery power on 2 Meter FM. CW contacts were worth two points each and phone contacts were worth one point each. The total score was multiplied by two because all stations used 200 watts DC input or less. The report was mailed by your Field Day Chairman Tom Truehardt, WB5LOR, on July 12, 1976, more than two weeks ahead of the deadline.

The committee to nominate officers for the new fiscal year are: Ivan Mangold WA5RNV, Robert Osborne WA5JDU, Jim Rutledge K5UKN and Paul Kane K5PPY. They will report at the Friday 3 Sept meeting and the election will be Fri 17 Sept. This committee will appreciate any suggestions that you may have.

(Continued on Page 6)

Technical Topics

By W5LFM CAL GRAF

Many of the radio pioneers that we know are passing into the land of the great DX. In the last issue of the Bull-etin, I recalled the efforts of Nyquist and his work with feedback. He passed away in Harlingen, TX. On the other side of the world in Tokyo, Japan, Dr. Hidetsugu Yagi, the inventor of the Yagi antenna passed away on 16 January 76. Dr. Yagi died at the age of 89 and Nyquist at the age of 87, so there seems to be something to this radio-electronics interest which leads to longivity.

There is hardly a ham who doesn't know of the Yagi antenna. In pre-WW II days it was known as a rotary beam or simply beam antenna but everyone knew it was the Yagi antenna. And the surprising thing about the Yagi, is that it was usually rotatible because if a ham went to the effort to build a Yagi, he also rotated it. There are other arrays such as the 8JK (2-element driven beam) which are about the same size and yet they were usually fixed in azimuth. The Yagi also brought out the concept of using aluminum tubing for the array whereas copper wire had always been used before, such as for the 8JK. And the Yagi in the old days was driven by EO-1 cable, which was the pre-war version of coax cable as we know it today. However, it was very expensive and not many hams could afford it.

The Yagi has seen extensive use as a feed for parabolic reflectors in all kinds of service such as satellite tracking, microwave communications, and radar antennas. In its basic form as a 5 or 6-element Yagi, it served as the antenna for the ASB and ASV series of early WW II airborne radar.

Today the Yagi is still popular but the term Tri-bander has taken the place of the once magic phrase "The antenna in use here is a Yagi array."

Solar energy and solar cells are in the daily headlines as we go looking for new sources of energy. An item in Electronic Design (19 July 76) is of interest as it tells about the inventor of the solar cell - Anthony Lamb. When he invented it back in 1931, he was threatened with dismissal if he persisted in promoting it. Since he could get nowhere, he turned it into the well-known and popular Weston light meter. He has done pioneering work in night flying, guided missles, and at the age of 72, he took out his 200th patent!

The light sensitive audio oscillator demonstrated to the SARC during a recent "Gidgets and Gadgets" by yours truly was written up in the 5 Aug 76 issue of EDN under the title "Build a Light Sensitive Audio Oscillator."

We have all heard a bit about fiber optics but not thought much about the subject. In the next few years, fiber optics will have a great influence on our lives in much the same way that TV and the pocket calculator have. While much of the research effort has been in the field of communications, there is also work being done in the auto and aviation fields. Optical fiber about as thick as a human hair is used to replace 3/4 inch coax cable. Light wave signals are carried on the optic fiber with a loss of only 16 DB per mile, compared to about 62 DB per mile for electronic signals carried on coax cable.

The optical fiber in the aircraft field will replace copper wire and coaxial cable with a great reduction in weight and cost. R and D in the fiber optic field is driving the line loss and the cost to manufacture down while the cost of copper continues to increase as its use expands. To use the fibers, one must actually have a small transmitter at one end of the fiber (such as an LED lamp) and a small receiver at the other end (such as a photocell or photodiode). Several quality autos have fiber optic cables which go to each headlight or stop light with the ends clustered at the dashboard. In this way, you can actually see if all your lights are working, including your stop lights, without getting out of the car. In the future, your new rig will be equipped with fiber optic leads running from one stage to the other in much the same way as coax or copper wire is used today. It is believed that the fiber optic field and its applications will take off in much the same way as the pocket calculator market.

Where will the bottom end? That is a low down question but it must be asked. The transistor radio bottomed out at about $2.99 (hardly worth repairing), the pocket calculator seems to be headed for about $5.99 (well, maybe put in a new 9-volt battery), but a thing hard to believe is the expected cost of a digital watch. By the end of the year, the prediction is that a digital LED watch will be available which sells for $9.95! And the start price of the LED quartz crystal watch was $1200 a few years back. Maybe you can feel better when you realize what a good antique

(continued on Page 3)

sundial or hourglass will bring on the antique market. Three minute eggs, anyone?

Recently I received a complementary copy of 73 Magazine and was surprised to see a reprint of this column from the SARC Bull-etin for May 76. The San Antonio Radio Club Bull-etin and the author were given full credit, as is requested by our Editor Dean Davis of anyone who reprints from the issues. Good luck for now.

73, Cal Graf W5LFM

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FROM HR REPORT

FCC IS COMING DOWN HARD on bootleggers operating between the 27 mHz CB band and 10 meters. FCC agents and U.S. Marshalls nailed a dozen of the outlaw operators in a July 22 raid in northern New Jersey and a photo of their seized equipment relayed by K2ULR looks like the transceiver/amplifier counter at a well equipped Amateur Radio store. Similar crackdowns are also reported to be taking place in other placesin other parts of the country.

FCC lacks a lot of the enforcement capability that it should have when it comes to unlicensed stations but Phyll Horne, Chief of FCC's Field Office Bureau, says two bills now before Congress can help considerably. These bills, HR 10620 and S2343, would give the FCC the power to levy monetary forfeitures against the operators of any unlicensed stations. They're a step in the right direction, and a note to your Congressmen and Senators telling them so would help. Though it is possible that they won't be acted on before this session of Congress adjourns in October, it is still important to let Congress know how we feel about them.

While you're about it, be sure to put in a plug for Amateur Radio and all the good things the Amateur Service has done and can do. Chances are they've got a file drawer full of mail from CB constituents, at least some of it asking for our "unused" extra frequencies! Charlie Higginbotham warned the land mobile people attending a recent Associated Public-Safety Communications Officers (APCO) Conference that they'd do well to lobby with the Congress for their frequencies against CB pressure and our claims are certainly no better than theirs.

14 mHz jammer continues to seriously disrupt Amateur and other communications across the HF bands but has been greatly reduced after formal complaints to Russian authorities were filed by Germany, Norway, Sweden and the United Kingdom as well as the U.S. Source of the signal has been confirmed to be near Kiev in the Ukraine. Thanks DL1PL, K6KA and K1FHN.

WN9VPG is 5 years old and was just licensed as a novice in Vincennes, Indiana. Does WN9 Very Precocious Guy have any challengers for youngest Amateur in the United States?

NOVICE EXAM RESULTS can be learned much more quickly than waiting for receipt of the license. Simply enclose a self addressed stamped post card with "__Failed" and "__ Passed" on the back and the exam grader will mark and return it when the exam is done and graded at Gettysburg. de HR REPORT.

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CLAY COMMENTS

ELECTRONIC KEYERS FOR GOOD CODE TRANSMISSION

By W5ZPV Clay Laster

By astute manipulation of the family budegt, your author was able to obtain a Heathkit HD-1410 keyer kit. After some 12 hours of assembly and test, the keyer was completed and ready for operation. Fortunately, no wiring errors were experienced due to the clear instructions provided by Heathkit, and the keyer operated satisfactorily upon initial "turn-on".

The keyer uses standard SN74XX integrated circuit chips (NAND and NOR gates and JK flipflops) to form a digital control circuit to generate dits and dahs. A feature of the keyer is that it has a built-in memory for the next dit or dah generated by the operator while the current dit or dah is being sent by the keyer. "Iambic" operation permits interaction of the two key "paddles" such that when both paddles are pressed or "squeezed", an alternate pattern of dits and dahs are generated. Keying speeds are adjustable from within two ranges. Each range is selectable by a resistor which is wired into the PC board. Range 1 (used by the author for obvious reasons) covers less than 5 WPM to over 35 WPM. Range 2 will cover from less than 10 WPM to over 60 WPM. A sidetone oscillator with adjustable tone frequency from less than 500 Hz to over 1000 Hz, allows operator monitoring of the signals being generated.

The keyer is very compact (5"W by 3"H by 7.4"D) and will operate from 120/240 VAC and 12V DC sources. The mechanical paddles are built-in and are adjustable to the operator's preference for spacing and tension. A speaker allows for sidetone oscillator monitoring or the operator can use headphones via a jack on the rear apron. Front panel controls include a speed control, volume control for the sidetone oscillator, on-off switch ganged to the volume control, keyer disable switch ganged to the speed control, and a power light indicator. Rear apron connectors include 120/240 VAC and 12V DC power connectors, transmitter keyer output, auxiliary hand key input, receiver audio input, and headphone output. The keyer is compatible with almost all modern transmitters or transceivers and provides the following keying characteristics: 1) The positive keying circuit allows a maximum of 200 ma with an open circuit voltage of 300 volts; 2) The negative keying circuit allows a maximum switching current of 10 ma with an open circuit voltage of 200 volts.

A block diagram of the circuit is given in Figure 1. Operation of the keyer is completely different from a conventional hand key. Considerably less hand movement is required and the keyer provides precise keying of the code characters with the proper spacing between the dits and dahs. All the operator has to do to produce perfect code transmissions is to provide proper spacing between the characters and

(Continued on Page 5)

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(Clay Comments Continued from Page 4)
words. It is estimated that some 4 to 6 hours of practice will be required to develop optimum proficiency with this keyer.

A more simple electronic keyer is described in the August 1976 issue of CQ Magazine. This keyer consists of only four IC chips, a current switching transistor, speaker, batteries, and some 15 resistors, capacitors, and diodes. A printed circuit card is available from the author of the article to facilitate construction. Danny Zamora, a new member of the club and a student in the current code and theory class, constructed this keyer and demonstrated it to the class. Perhaps he will write an article on this keyer for publication in the club Bull-etin.

73, Clay Laster W5ZPV.

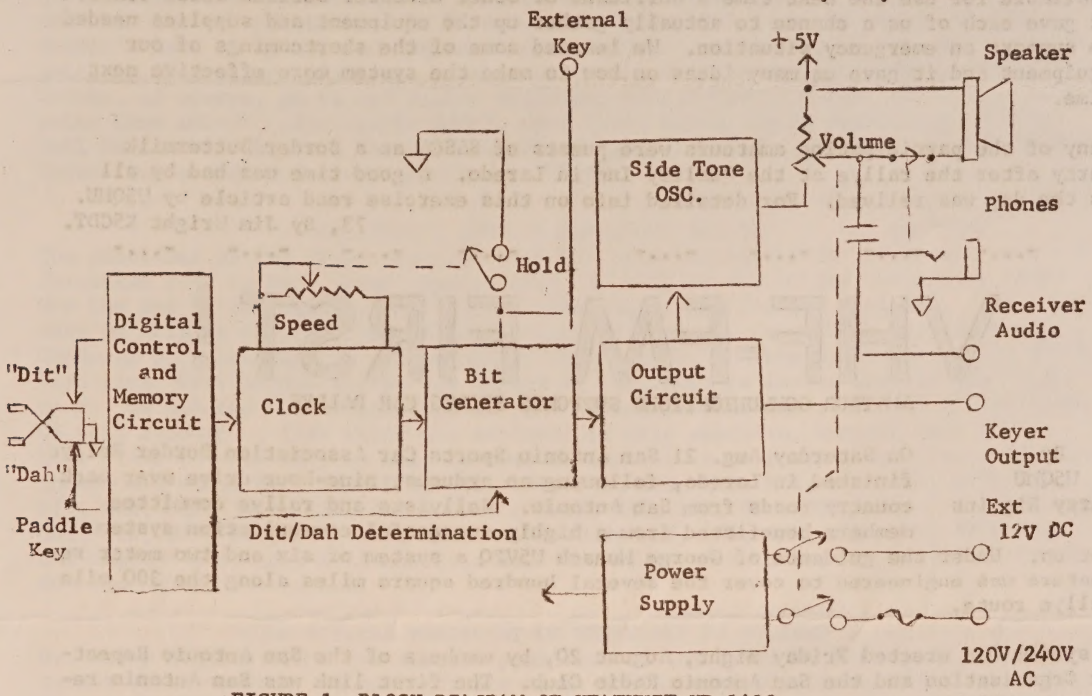

FIGURE 1. BLOCK DIAGRAM OF HEATHKIT HD-1410 ELECTRONIC KEYER

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NOVICE AMATEUR RADIO CLASSES

The San Antonio YMCA plans to offer a number of Novice "Code & Theory" classes, beginning on 7 Sept. 76. Classes will be held at the Northwest Branch and the Lackland AFB Branch beginning on 7 Sept.76 and on 21 Sept.76 at the Townnorth Branch. Cost of each class will be approximately $25 per student plus about $4 to $5 for the text book. Each class will run for about 10 weeks and will meet at 6:30 PM to 9:30 PM on Tuesdays. Novice tests will be administered by the instructors at the end of the class. Call the NW YMCA at 735-9231 or the Townnorth YMCA at 656-5777 for more details and registration.

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BUDDY - ELMER SYSTEM

Bob Baldwin, WN5MCJ, is heading up a program to insure that new hams in the San Antonio Area will have an "ELMER" to call when they need help in setting up an amateur station or in trying to locate used ham equipment. This "BUDDY" System will insure that the newcomer to the world of amateur radio will be able to get that extra bit of help which is often required to get started. Remember when you were able to get some help from a ham? Now is the time you can pass on that favor and help the newcomer. Call Bob at 734-6148 and volunteer your services. He already has a list of some 17 new "Buddies" from the current code and theory classes who have indicated a need for help in this great service of amateur radio.

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N O V I C E T E S T S

Any newcomer to amateur radio who wishes to take the NOVICE test can contact Clay Laster, W5ZPV, at 344-7356. He is prepared to administer the 5 WPM code test at any club meeting as well as the written exam when received from the FCC. Brush up on that code and come prepared.

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SARC CHRISTMAS PARTY - SATURDAY DECEMBER 4, 1976. PLAN NOW TO ATTEND!! DINNER-DANCE

On August 21, 1976, members of the San Antonio Repeater Organization and our Club provided communications for the Laredo Border Rallye sponsored by the San Antonio Sports Car Association and the Alzafar Shrine. Ramrodded by George Munsch, W5VPQ and by Larry Higgins, W5QMU, a crossband repeater using 52,525 Mhz input and 146.28 output was installed on a tower near Dilley. For communications in the area of this repeater, a 146,34/94 "dump" was added. A standard 146.28/88 repeater was installed on a tower near Encinal. This formed an effective link between San Antonio, Laredo and points all along the route on the rallye.

What did this accomplish? We had the opportunity to try a system which would be available for use the next time a hurricane or other disaster strikes South Texas. It gave each of us a chance to actually gather up the equipment and supplies needed to support an emergency situation. We learned some of the shortcomings of our equipment and it gave us many ideas on how to make the system more effective next time.

Many of the participating amateurs were guests of SASCA at a Border Buttermilk party after the rallye at the Quality Inn in Laredo. A good time was had by all as the day was relived. For detailed info on this exercise read article by W5QMU.

73, By Jim Wright K5CDT.

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VHF-FM FIRST!

AMATEUR COMMUNICATIONS SUPPORTS SPORTS CAR RALLYE

By W5QMU Larry Higgins

On Saturday Aug. 21 San Antonio Sports Car Association Border Rallye finished in Laredo, following an arduous, nine-hour drive over back country roads from San Antonio. Rallyists and rallye committee members benefitted from a highly successful communication system set up. Under the guidance of George Munsch W5VPQ a system of six and two meter repeaters was engineered to cover the several hundred square miles along the 300 mile rallye route.

A system was erected Friday night, August 20, by members of the San Antonio Repeater Organization and the San Antonio Radio Club. The first link was San Antonio repeater, WR5ADH, operating on 52.88/52.525 Mhz. This repeater was linked to a 146.28/146.88 machine located south of Webb, approximately 40 miles from Laredo. Linking was accomplished by a duel transparent repeater located near Dilley, approximately 75 miles southwest of San Antonio.

This dual repeater accepted 52.525 Mhz output of WR5ADH and translated it to 146.28 Mhz, the input of WR4ACL/5 near Webb. The 146.88 Mhz output of WR5ACL was received at Dilley by this machine and retransmitted on 52.88 Mhz back to San Antonio. The Dilley machine, operating under the call WR5AKI/5, also possessed a 146.34 Mhz input and a 146.94 Mhz output. With these three frequency pairs, it was possible for mobile and fixed stations located near Hondo, near Dilley, in Laredo, and at the finish line 80 miles northwest of Laredo in Catarina, to easily communicate over the entire system.

Mobiles were assigned to sweep cars in each of the three major legs of the rallye to search for lost and disabled vehicles. One of the mobiles was airborne and piloted by Bill Skipper WB5SXG. The rallye committee cooperated by placing numbers on the roofs of contestants' automobiles.

The VHF system was backed up by HF operations on 75 and 40 meters from San Antonio Radio Club station, W5SC.

The system worked exceedingly well and provided entirely reliable communications. Special thanks are due the Medina Valley Electric Cooperative who allowed use of their tower for WR5AKI's directional antennas. Further thanks are due Doug Brooks K5YIK, of the Texas Parks and Wildlife Department, who arranged tower space at the WR5ACL portable repeater site. The system proved the possibility of crossband multiple repeater linking for emergency communications in some of the more inhibited and desolate sections of Texas.

Rallye committee members communicated largely on citizens band and cross licensed ham radio club members coordinated the rallye official communications into the Amateur system, thus providing another example of citizens band/Amateur band coordination.

(Continued on Page 7)

Difficulties arose from a repeater in Austin, over 150 miles away during the early morning hours. At that time, military communications net on 52.80 Mhz managed to find its way into another repeater located north of San Antonio, whose output was 52.525 Mhz. This proved embarrassing for a while and it reinforced the need for the San Antonio repeaters--at least--to move to one of the ARRL/Texas VHF-FM Society approved repeater pairs.

Beyond the brief difficulties with skip signals, the system was a success. Rallye committee members were ecstatic in their praise of the highly effective comunications provided. At no time was there any break of significance. In one case, the finish line team at Catarina was able to radio assistance for a vehicle at that city and when the vehicle arrived in Laredo, the replacement part was placed in the driver's hand as he entered the motel parking lot. Since over 45 Amateurs participated in this major sports car event, only a few will be mentioned here. Special thanks, of course, go to our system engineer, George Munsch W5VPQ, and other check point team chiefs: Jim Wright K5CDT, Dean Davis W5BGE, Chuck Kenworthey WB5FWI, Neil Martin WA5FSR, Bert Brown K5HVC, Tom Truehardt WB5LOR, and Ivan Mangold WA5RNV. Inter-club coordination was provided by W5QMU.

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ADDITIONAL INFO ON SPORTSCAR RALLYE de W5BGE

The president of the SASCA remarked that FM group had been able to furnish more information than he had "ever dreamed of!" We were at the Dilley checkpoint which was the end of the second leg and the beginning of the 3rd and last leg. Not only were we able to furnish the out times to the end of the race which was located at Catarina but also were in direct contact with Laredo and the president of the SASCA. Also with Bill WB5SXG flying air mobile we were able to locate some of the "lost" cars. We beleive this demonstration of FM communication was a "FIRST" of its kind. We will attempt to list those who assisted in this exercise, knowing very well that since so many did, it will be next to impossible to include everyone--but here goes: WBs--GAH, SXG, OKK, FNI, LCT, LOP, CIT, HQO, QBV, FWI, UKB, SND, UII, SNY, DTW, LOR, MKJ; WA's--JDU (also Robert Sr.), RNV, LNL, VFM, FSR, KQB, PAF; K5's--CDT, SUZ, UWS, HVC, PUX, DSF, LAX; W5's--QMH, VPQ, TSE, SFH, GHQ, YOY, FKK, BGE; and WN5QXN--also many XYLS and friends. Out of towners included Doug K5YHK, Austin and Dan K5MYY, Georgetown.

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W5QMU ELECTED PRESIDENT OF TEXAS VHF FM SOCIETY

Dr. Larry Higgins W5QMU was elected president of the Texas FM Society at the recent state meeting. Other officers were: K5FOG, vice president, WA5MMD secretary-treasurer, K5AIT editor and K5TPF technical coordinator. About 450 attendees and half a dozen exhibitors were at the meeting, which saw the group go on record formally adopting its own 10 meter band plan--100kHz offset starting at 29515, with 29600 left open for simplex use. They also voted to endorse ARRL's 6 meter band plan so the group now officially supports all the ARRL band plans. They are discouraging the use of 15 kHz splits on 2 meters, suggesting further repeater expansion take place on 220 instead. Applications for 2 meter splits will be handled by the Society's board instead of frequency coordinators, and split systems--and their neighbors--must go narrow band with PL. The Society's next meeting will be held in February 4-6, in Corpus Christi. The summer meeting will be held here in SA.

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FROM HR REPORT

FCC implementation of pending changes in Amateur examinations--specificially, the code comprehension test and "instant upgrade" to let an applicant assume new privileges immediately after he passes an exam--will probably hang fire a while longer. The Amateur and Citisens Division is currently pretty tied up on CB and some urgent Amateur matters, but it's considered likely that at least one and probably both will see action this fall.

Closing date for nominations for ARRL Directors and Vice Directors has been moved up to compensate for current mail delays. Nominations for this fall's elections must be received in Newington by September 10, 10 days earlier than in previous years.

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FOR SALE--Used Glob "Chief" 90 watt CW xmitter, some 10 assorted crystals and a speech amp/modulator for AM. All for only $25. Contact Bill Harrison, W5HMA, 648-0200.

Hallicrafter S4CA receiver, $30. Sencore Mighty Mite Tube Checker TC109, $25. Good tubes 2 4-250 & sockets, 3 211, 2 T55, 2 RK-60, 2-837, others. Need 4-65's. Frank W5EDX 733-8978, 2334 W. Mulberry.

FOR SALE--KWM2 A375 & mobile pwr supply. Good condition, recently reconditioned. Bill Rinn W5KUF. off.227-2479, home 341-0918.

W5EYB WILL NOT SEEK REELECTION

ROY ALBRIGHT W5EYB HAS ANNOUNCED

THAT HE WILL NOT BE A CANDIDATE

FOR REELECTION AS DIRECTOR

OF THE WEST GULF DIVISION ARRL.

ROY WISHES TO EXPRESS HIS THANKS

AND DEEP APPRECIATION FOR

THE ASSISTANCE AND COOPERATION

HE HAS RECEIVED FROM THE

RADIO AMATEURS OF THE DIVISION

DURING THE LAST EIGHT YEARS

HE HAS SERVED AS DIRECTOR.

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AN EDITORIAL BY W5BGE

We received the announcement that Roy would not seek reelection with great regret. We know that a decision of this magnitude by a man of this magnitude came only after careful consideration.

During Roy's eight year tenure the West Gulf Division has doubled under his leadership. FMers will miss the emphasis he has been able to exercise through ARRL channels. His eight years has seen many changes in FCC rules and regulations, and his efforts were tireless in preventing major hardships on the Amatures as a whole.

He has traveled thousands of miles during this period to attend all Amateur functions physically possible in Texas-Oklahoma area.

His dedication, his finesse, his touch, his gentleness but firmness, his loyalty, his humor--his leadership--will be missed.

73's to a soldier who has fought a good battle for Amateur Radio.
88's to Hazel, his super XYL.

de W5BGE Dean.

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